Claims

What is claimed is:

1. A system for ensuring written data integrity in a data storage device operating outside of predefined normal operating conditions comprising:

an environmental stress monitoring module operable to identify data storage device operation in an environmental stress condition; and

a write integrity check module for verifying written data integrity during data storage device operation in the environmental stress condition.

2. The system according to claim 1 wherein the environmental stress monitoring module has a temperature detector that senses device operational temperature and identifies a stress condition as an operational temperature outside a predetermined range of temperatures.

3. The system according to claim 1 wherein the write integrity check module invokes a software routine verifying each write operation following identification of an environmental stress condition by reading back each data written to the data storage device and comparing the read back data with the data written.

4. The system according to claim 3 wherein the monitoring module has a temperature detector that senses device operational temperature and identifies a stress condition as an operational temperature outside a predetermined range of temperatures.

5. A method for verifying data integrity in a data storage device operating in an environmental stress condition comprising:

identifying an environmental stress condition occurring during data storage device operation;

verifying data written to the data storage device after the environmental stress condition is identified; and

signaling a write error if the data written to the data storage device when verification of the data written is not confirmed.

6. The method according to claim 5 wherein the identifying comprises:

monitoring device operating temperature; and

signaling a stress condition if the monitored operating temperature is outside a predetermined range of temperatures.

7. The method according to claim 5 wherein the verifying comprises:

writing data to a logical block address;

reading back the data written to the logical block address; and

comparing the data read back with the written data.

8. The method according to claim 7 further comprising:

determining a spare location for the written data if the data read back is not identical to the written data;

writing the written data to the spare location;

reading back the data written to the spare location; and

comparing the data read back from the spare location to the data written to the spare location.

9. The method of claim 8 further comprising:

indicating a write error if the data read back from the spare location is not identical to the data written to the spare location.